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THE SPECIES OF ISOETES OF THE INDIAN TERRITORY.—ISOETES MELANOPODA, J. Gay, originally found in central and northern Illinois, then in the neighboring regions of Iowa, seems to be peculiar to a belt of prairie country extending from northeast to southwest, from Illinois to Iowa, the Indian Territory and Texas. Mr. E. Hall, who discovered the species in Illinois, found it also some years ago in Dallas county, Texas, and now Mr. G. D. Butler sends it from the Indian Territory. However the other characters may vary, the macrospores everywhere readily characterize the plant. They are the smallest of any of our species, but varying in the same sporangium, between 0.25 and 0.35 mm., very rarely as much as 0.40 mm. in diameter, marked with confluent knobs and curved and twisted (worm-like) low, sometimes almost indistinct, elevations, visible, of course, only under a strong magnifier. The velum or membranaceous fold, which more or less completely covers the spore case, or is, rarely, wanting, is in this species usually narrow, or sometimes wider; in the southern forms it covers about one-third of the upper half of the sporangium. Full-grown specimens are $\frac{1}{2}$ -1 inch in diameter at the almost black and shining base of the leaves; these, smaller and fewer in the northern forms, are in the southern ones 20-50 in number and 8-12 inches in length, and, as I have described them in Gray's Manual, triangular, with 4 peripheral fibrous bundles and with numerous stomata.

ISOETES BUTLERI, *n. sp.*—I name an allied species discovered by Mr. Butler, near the latter, in drier soil, a much smaller plant with earlier (beginning of June) maturity. It is at once recognized by its larger macrospores, 0.50-0.63 mm. in diameter, marked with distinct knobs or warts, which rarely run together. The base of the plant is only $\frac{1}{2}$ inch thick, the slender leaves with dull whitish bases, only 8-12 in number, are 3-6 or 7 inches long, of exactly the same structure as those of the last species. Velum very narrow or almost none. Microspores aculeolate in both, in the latter species a little larger than in the former.

The species of Isoetes are usually, as is well known, monœcious, the exterior sporangia bearing female or macrospores, the interior, later developing ones, male or microspores. But *I. melanopoda* is oftener diœcious than monœcious. Mr. Butler examined hundreds of specimens and found about one-third monœcious and two-thirds diœcious, and of these the male and female plants in about equal numbers. Of *Isoetes Butleri* he never could find a monœcious plant; all the specimens which he found as well as those which I examined, were diœcious, both sexes in about equal numbers.—G. ENGELMANN, *St. Louis, Nov. 1877.*

To the foregoing description by Dr. Engelmann I append some remarks in regard to the locality in which these plants occur. Both were found near Limestone Gap on the Missouri, Kansas & Texas railroad, about 70 miles north and 100 miles west of the Texas and Arkansas boundaries, near the divide between the Red and Arkansas rivers. The surface of the country is very rough, woods and prairies alternating and of about equal extent. There is a clay underlying most of the country. Many wells and springs running into or passing through this clay are damaged or sometimes rendered unfit for use by the quantities of sulphates of magnesia and soda entering into solution therefrom. Occasionally this clay arises to the surface, forming low, level places, which are popularly known as alkaline flats, but which I call "sulphate flats," these sulphates

often occurring in a thin efflorescence on their surface. During winter and spring, while the rainy weather lasts, the sulphate flats, owing to their level surface and imperfect drainage, are very wet, but by or before the first of July, when the dry summer has well begun, they have become the driest of all dry places, for the clay prevented the water from soaking in, and the soil is so thin that an adequate store of moisture could not be laid up. What in early spring was the home of moisture-loving species, has in summer a coat of such species as *Iva angustifolia*, and *Ambrosia psilostachya*; but even these are matured earlier and are smaller on the sulphate flats than elsewhere, owing probably to their dryness. Even *Opuntia Rafinesquii* grows on the flats, but it, too, has an unhealthy dwarfish appearance, though for a different reason, as I take it; it must have been for it such a great effort to endure the protracted drenching in winter and spring. These sulphate flats are the home of *Isoetes Butleri*. It disappears between the middle of June and the first of July. It grows with *Plantago pusilla*, *P. Patagonica*, var. *aristata*, *Polygala verticillata*, *Arenaria Pitcheri*, &c. There are occasional basins in the flats which contain more or less water, and here *I. melanopoda* grows. It also occurs in nearly all pools, ditches and wet weather streams. It is much more common than the other, or at least appears so, as it is so much easier to find, owing to its greater size, and paucity of companions. It disappears in August. Neither species will do well if shaded.—GEO. D. BUTLER, *Almont, Iowa*.

AN ENUMERATION OF SOME PLANTS—CHIEFLY FROM THE SEMI-TROPICAL REGIONS OF FLORIDA—WHICH ARE EITHER NEW, OR WHICH HAVE NOT HITHERTO BEEN RECORDED AS BELONGING TO THE FLORA OF THE SOUTHERN STATES. BY A. W. CHAPMAN.

Anona glabra, L. Smooth; leaves sub-coriaceous, oval or oblong, acute, entire; peduncles short; petals thick and fleshy, ochroleucous, reddish within, the outer ones elliptical, the inner ones smaller, lanceolate; fruit smooth, globose or sub-conical, many-seeded; seeds oblong, compressed.—Banks of the Caloosa River, and near Miami, (Dr. Garber,) South Florida. June, fruiting in November.—A tree 10-30 feet high. Leaves, 3-5 inches long. Flowers, $1\frac{1}{2}$ inches wide, fragrant.

Nymphaea flava, Lutres. A notice of this yellow Pond Lily is contained in Harper's Magazine for August, 1877. I have not seen the plant.

Cypseloa humifusa, Turp. Annual, smooth, succulent; leaves opposite, obovate; the petioles dilated into a lacerated stipule-like membrane; flowers axillary, minute, sepals obtuse, greenish within; petals none.—South Florida, *Dr. Blodgett* in Herb. Gray.

Malva parviflora, L. Stem stellate-hairy, the branches decumbent; leaves round-cordate, obtusely 5-lobed, crenate-serrate, downy, half as long as the petiole; flowers single or clustered, pale rose-colored; carpels deeply pitted on the back, the sides rugose. Waste places, Apalachicola. Introduced.

Malvastrum spicatum, Gray. Stem stout, branching, hairy; leaves on long petioles, ovate, acuminate, crenate, tomentose beneath, the lower ones cordate; flowers small, in dense axillary and terminal spikes or clusters; involucl 3-leaved, as long as the very hairy calyx, and the obliquely obovate yellow petals; carpels 10-12, smooth, awnless. Apalachicola. Introduced. Stem 2-4 feet high.

Sida cordifolia, L. Tomentose; stem tall, branching; leaves cordate-ovate, entire, or angularly 3-lobed, crenate-serrate; flowers small, axillary, the upper ones crowded in a dense compound raceme; carpels 10-12, shorter than the two slender retrorsely scabrous awns.—Waste places, Cedar Keys, Florida. October. Annual. Stem 3-5 feet high. Leaves 2-3 inches long. Flowers $\frac{1}{2}$ inch wide.

Purtonia spinifex, Willd. Shrubby, hirsute; leaves on long petioles, oblong-ovate, mostly cordate, serrate; peduncles mostly longer than the petioles; leaves of the involucl 8, lanceolate, longer than the calyx, shorter than the yellow corolla; carpel trispin-